

REMARKS

Claims 1-8 and 25-29 are presented for examination in this application. Claims 9-24 remain withdrawn. Claims 27-29 have been added. Support for these claims can be found, for example, at page 7, lines 21-30 of the specification. No new matter is presented.

Applicants acknowledge with appreciation the lack of a prior art rejection against claims 4 and 26.

The drawings are objected to for failing to show the feature of claim 26 "wherein said electrodes defining the pixels are not substantially aligned with edges of a repeat unit." This objection is respectfully traversed. One example of an embodiment of this feature is illustrated in FIG. 10 with reference to pixel area B. As discussed at page 21, lines 21-22 of the specification, area B corresponds to a possible pixel arrangement where the edges of the pixel do not align with the edges of the repeat unit.

Claims 1-8, 25 and 26 are objected to because the claim terms "pixel," "pixel areas" and "electrodes" are perceived by the Examiner as having unconventional meanings in light of the description at page 8, lines 20-33 and page 9, lines 16-31 of the specification. This objection is respectfully traversed. It is respectfully submitted that the claim terms "pixel," "pixel areas" and "electrodes" are used and described in the specification in accordance with their conventional meanings.

For example, the term "pixel area" simply refers to the area of the pixel. As a person skilled in the art will understand, the term "pixel" was originally derived as an abbreviation of the term "picture element" and is conventionally used to refer to the individual parts of the picture which can be altered to change the display. In this sense it is commonly related to the size of the electrodes which define separately addressable areas. However, if, in a particular display, the electrodes define an area of a certain size, but a smaller filter, for example, limits the area which can be seen, then it is the smaller area defined by the filter area which contributes to the final picture and therefore forms the picture element or pixel. Accordingly, the usage of the claim terms "pixel"

and "pixel areas" is consistent with the conventional meaning. Similarly, the term "electrode" has the conventional meaning of a means for supplying voltage to an area, which is set forth in and consistent with the portions of the specification identified by the Examiner.

Accordingly, withdrawal of the objections to the claims is respectfully requested.

Claims 1-8, 25 and 26 are rejected under 35 USC 112 as indefinite because the claim term "electro-optic characteristic" is deemed unclear. This rejection is respectfully traversed. It is respectfully submitted that the scope of the claim is clear to one of skill in the art. In particular, the claims refer to a light modulating device having a plurality of switching regions, which are understood to be regions where the type of light modulation can be altered to change the display. Claim 1 recites imparting an electro-optic characteristic to a light modulating medium. The person of skill in the art understands that the electro-optic characteristic is the characteristic of the light modulating medium and the term refers to the nature of light modulation applied and electric signal needed to change the modulation.

An example of this can be found on page 7, line 27 to page 8, line 4 of the specification, which describes liquid crystal displays where the electro-optic characteristic is the switching threshold for achieving latching to/from a light transmissive state to a non-transmissive state. Thus, the requirement for each switching region to impart one of least two electro-optic characteristics in this example is to have a first switching region which latches between different optical states at a first electrical threshold and also at least a second switching region which latches between different optical states at a second electrical threshold.

Accordingly, it is therefore submitted that it is clear that the electro-optic characteristics are characteristics of the light modulating medium and that one skilled in the art would be well aware of what such characteristics are and how to arrange a switching region so as to impart one of at least two electro-optic characteristics to the medium. Thus, withdrawal of the 112 rejection is respectfully requested.

Claims 1-3, 5-8 and 25 are rejected under 35 USC 102(b) on Jones (WO 01/40853). This rejection is respectfully traversed.

Claim 1 recites a repeated pattern layer for a pixellated light modulating device comprising a number of elements in combination. The claimed combination includes a cell and several switching regions. The cell comprises a light modulating medium and electrodes that define pixels. Each switching region imparts one of at least two electro-optic characteristics to the light modulating medium of the cell. The switching regions are in a repeat unit that has a length less than half the length of the minimum pixel dimension.

A similar combination of features, including a combination wherein the repeat unit length is less than half the length of the minimum pixel dimension, is not disclosed in Jones.

For instance, the Examiner cites Jones for teaching a plurality of switching regions within each repeat unit, wherein the repeat unit length is less than half the length of the minimum pixel dimension. However, the portion of Jones on which the Examiner relies for this teaching, the saw-tooth portions of grating 21, provides no disclosure of a repeat unit length that is less than half the length of the minimum pixel dimension. No specific teaching can be found anywhere in Jones regarding the relationship of pixel size to repeat unit size. While the portions of grating 21 are shown in FIGS. 5B, 5C and 7A, these figures and their corresponding text provide no indication of what the pixel size is.

Since Jones does not disclose the repeat unit length being less than half the length of the minimum pixel dimension as claimed, Jones cannot anticipate claim 1 or the claims depending thereon. Accordingly, withdrawal of the 35 USC 102 rejection is respectfully requested.

The newly added dependent claims indicate that the variations between switching regions is the switching threshold (claim 27), and that the switching threshold is the only variation in electro-optic characteristic (claim 28) - i.e., all other optical properties are the same between switching regions. Claim 29 specifies that switching regions are arranged to allow for greyscale within a pixel.

In contrast, Jones teaches a device that can be switched between a scattering state and a non-scattering state. To achieve this, the cell of Jones is arranged to be switched between a state where the liquid crystal alignment is the same across the cell to an arrangement where the alignment varies across the cell - i.e., a variation in alignment between switching regions, or between a switching region and a flat (monostable) area. There is no teaching in Jones of arranging the switching regions to have different latching thresholds.

The subject matter of claims 27 - 29 is concerned with achieving greyscale within a pixel. To achieve grayscale, the different switching regions are to be selectable by different addressing voltages. Further, for good quality grayscale, the switching regions should be identical in all other respects, i.e., switchable between the same optical states, so that they appear the same when viewed from any angle. Thus, Jones teaches away from the subject matter of claims 27 - 29.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 527122000400.

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